

WE CLAIM:

1. An apparatus for burning solid fuel, the apparatus comprising:
a combustion chamber enclosure defining a combustion chamber for
combustion of a fuel and including an air passage opening; and
5 an automatic air intake control coupled to the fireplace to regulate air
intake into the combustion chamber through the air passage opening for combustion of
the fuel, the automatic air intake control comprising:
a cover movable between open and closed positions relative to
the air passage opening; and
10 a timer coupled to the cover and configured to control the
position of the cover to regulate air intake into the combustion chamber.
2. The apparatus of claim 1, wherein the automatic air intake control further
comprises an actuating member coupled to the cover and configured to move the cover
between the open and closed positions, and the timer is coupled to the cover through the
15 actuating assembly
3. The apparatus of claim 1, wherein the automatic air intake control
includes an actuating assembly that includes an actuating member and a follower
member, the actuating member being secured to the timer and having a follower surface
formed therein, and the follower member including a first end coupled to the cover and
20 a second end that engages the follower surface.
4. The apparatus of claim 3, wherein the engagement position of the
follower member on the follower surface corresponds to positions of the cover between
the open and closed positions.
5. The apparatus of claim 3, wherein the follower surface includes a first
25 portion defining a first open position for the cover, a second portion defining a second
open position, and a third portion defining a closed position, and the controlling step

includes moving the follower member between the first, second and third portions of the follower surface.

6. The apparatus of claim 2, wherein the cover rotates about a shaft and the actuating member rotates about a shaft that is coaxial with the cover shaft, and the timer
5 controls rotation of the actuating member.

7. The apparatus of claim 2, wherein the timer includes a rotatable shaft coupled to the actuating member, and rotation of the shaft is controlled in a timed manner.

8. The apparatus of claim 1, wherein the apparatus is a wood-burning stove
10 and the solid fuel is a fibrous product.

9. The apparatus of claim 1, wherein the automatic air intake control further includes a manual adjustment arm coupled to the timer and configured to manually set the timer for a predetermined air intake control period.

10. The apparatus of claim 9, wherein combustion chamber enclosure further
15 includes a main air passage, and the manual adjustment arm includes a first member coupled to the actuating assembly and a second member controlling air intake through the main air passage.

11. The apparatus of claim 1, further comprising a secondary combustion system that includes a side riser and a manifold that direct combustion air to a top
20 portion of the combustion chamber for secondary combustion of the solid fuel.

12. The apparatus of claim 11, further including a baffle positioned in the top portion of the combustion chamber, and the manifold directs combustion air adjacent to the baffle.

13. The apparatus of claim 12, wherein the baffle comprises a refractory material with high heat reflective properties.

14. The apparatus of claim 1, further comprising a front panel and an air wash system, the air wash system including an air channel that directs air across a surface of the front panel within the combustion chamber.

15. The apparatus of claim 1, wherein the automatic air intake control is positioned at a bottom side of the combustion chamber enclosure.

16. The apparatus of claim 1, wherein the cover provides a substantially airtight seal with the air passage.

17. A method for automatic control of air intake for combustion within an apparatus that burns solid fuel, the apparatus including a combustion chamber enclosure that defines a combustion chamber for combustion of fuel, an air passage opening formed in the combustion chamber enclosure, and an automatic air intake control that includes a cover and a timer, the method comprising the steps of:

adjusting the cover between an open and closed position to control flow of combustion air through the air passage opening into the combustion chamber for combustion of the solid fuel; and

controlling a position of the cover over a predetermined time period with the timer.

18. The method of claim 17, wherein the automatic air intake control further includes an actuating member, and the controlling step includes moving the cover between the open and closed positions with the actuating member and controlling the actuating member with the timer.

19. The method of claim 17, wherein the automatic air intake control includes an actuating assembly that includes the actuating member and a follower

member, the actuating member being coupled to the timer and having a follower surface, and the follower member being coupled to the cover and engaging the follower surface, and the controlling step includes moving the actuating member with the timer thereby moving the follower member relative to the follower surface to adjust the position of the cover.

20. The method of claim 19, wherein the follower surface includes a first portion defining a first open position for the cover, a second portion defining a second open position, and a third portion defining a closed position, and the controlling step includes moving the follower member between the first and second open positions and the closed position for the cover.

21. The method of claim 17, wherein the adjusting step includes setting the cover in the open position and the controlling step includes moving the cover from the opened position to the closed position.

22. An automatic air intake control for regulating air intake into an apparatus configured to burn solid fuel, the automatic air intake control comprising:
a cover movable between open and closed positions; and
a timer coupled to the cover and configured to control the position of the cover to regulate air intake into the apparatus.

23. The air intake control of claim 22, further comprising an actuating member coupled to the cover and configured to move the cover between the open and closed positions.

24. The air intake control of claim 22, further comprising an actuating assembly that includes an actuating member and a follower member, the actuator member being secured to the timer and having a follower surface, and the follower member being secured to the cover and engaging the actuating member along the follower surface.

25. The air intake control of claim 24, wherein the follower surface includes a plurality of steps, each step corresponding to a different position of the cover between the open and closed positions.

5 26. The air intake control of claim 24, wherein the timer includes a rotatable shaft that is coupled to the adjustable member, and rotation of the rotatable shaft moves the adjustable member thereby moving the follower member such that the cover is moved between the open and closed positions.

10 27. The air intake control of claim 22, further comprising a timer setting member coupled to the timer to set the timer for a predetermined air intake control period.

28. The air intake control of claim 24, wherein the follower surface is defined within a shaped slot that is formed in the actuator member.